

QUALITY OF

**HIGHER EDUCATION
&
ECONOMIC DEVELOPMENT
(HEED)**

VOLUME I

Editors
Dr R. Balasubramaniyan & Maj. Dr M. Venkataramanan.
Dr S. Narasimhan,

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QUANTITATIVE AND QUALITATIVE ASPECTS OF HIGHER EDUCATION AND IT'S IMPACT ON ECONOMIC DEVELOPMENT - STATEWISE ANALYSIS

* Dr. R. Annapoorani

** C. Vijayalakshmi

Introduction:

A well developed and equitable system of higher education that promotes quality learning as a consequence of both teaching and research is central for success in the emerging knowledge economy. It is widely acknowledged that education contributes significantly to economic development. The developed World understood much earlier the fact that individuals with higher education have an edge over their counterparts. They are the ones who always believed that any amount of investment in higher education was justifiable. It is, therefore, imperative for developing countries too, to give due importance to both the quantitative and qualitative expansion of higher education. (Monjurul Islam ,2012)

The Indian higher education system is the largest in the World in terms of the number of institutions. India has 17,973 institutions of higher learning as compared to around

* Professor of Economics, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore-641043.

** Ph.D, Research Scholar, Department of Economics, Avinashilingam Institute for Home Science and Higher Education for Women, Coimbatore-641043.

2,500 in China. The number of institutions in India is more than four times the total number of institutions both in the US and Europe.

The total enrolment in the higher education system (excluding distance education) has increased from 0.17 million in 1950-51 to 10.48 million in 2004-05 with an average annual growth rate of 8.04 per cent. Indian higher education system has expanded at a fast pace by adding nearly 20,000 colleges and more than 8 million students in a decade from 2000-01 to 2010-11. As of 2011, India has 42 central universities, 275 state universities, 130 deemed universities, 90 private universities, 5 institutions established and functioning under the State Act, and 33 Institutes of National importance. (Ved Prakash, 2010)

In the 21st century, it is crucial to identify the relative norms for different components of a higher education system. The alternative dynamics for teacher preparation and the sustaining quality in teacher input, like: Curriculum design and development; Curricular practices vis-à-vis emerging principles of pedagogy; Evaluation of learners performance and progress curriculum evaluation and quality management practices become crucial.

Of late, various developments have been witnessed relating to quality assurance mainly through the intervention of information and communications technologies (ICT) in education, like networking of the open learning system with traditional universities, interdisciplinary interactions at intra-institutional and inter-institutional levels, networking of institutions globally, data based management of higher education, changing the orientation of institutions by

incorporating self financing in their financial management, assessment and accreditation of higher education institutions and creation of different statutory and regulatory bodies at the national level.

In India research studies like Dhumal (2010), Raju, (2011) etc have focussed on analyzing the enrolment in higher education but there have been little attempt concentrating on analyzing the link between higher education and economic development. Hence the current study on **Quantitative and qualitative aspects of higher education and it's impact on economic development-state wise analysis** was formulated with the following objectives

1. To find out the state wise variations in enrolment in higher education.
2. To find out the interstate variations in Gross Domestic Product and
3. To find out the impact of higher education on economic development.

Methodology

The study is related to 16 States of India – Andhra Pradesh, Assam, Bihar, Gujarat, Haryana, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamilnadu, Uttar Pradesh, and West Bengal. The study is related to 2010-11. The information on enrolment in higher education, number of universities, number of teachers and number of Colleges was compiled from.

1. Census 2011.
2. UGC report-2010-2011

3. Data on State wise Gross Domestic Product at constant prices was compiled from Economic survey.

Hypotheses formulated

1. The enrolment in higher education do not differ among the states.
2. State wise variation in Gross Domestic Product does not exist and
3. Enrolment in higher education has insignificant impact on economic development.

Quantitative tools used

1. Theil's inequality index:

The study tried to find out the inequality index in State wise Gross Domestic Product, enrolment in higher education, number of teachers in higher education, number of universities and number of colleges by using the following formula

$$\text{Theil's inequality index} = \text{Log } N - \frac{1}{N} \sum_{i=1}^N (\log 1/x_i)$$

$X_i = x_i / \sum x_i$ and $N = \text{Number of observation.}$

2. Discriminant analysis:

The study tried to apply Discriminant analysis to identify the factors determining economic development. On the basis of Gross Domestic Product, the states were classified into two categories. Group I comprises of the states which have Gross Domestic Product higher than the national average (7) and group II represents the states having Gross Domestic Product lower than the national average (9). The estimated discriminant function is of the form

$$Y = b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5$$

Where Y= Gross Domestic Product.

X1= Population

X2= Enrolment in higher education

X3= Number of teachers in higher education

X4= Number of universities and

X5=Number of colleges

The estimated discriminant function coefficients were tested for reliability by using Mahalanobis D square statistics. On the basis of the discriminant function coefficients, potency index was calculated. For estimating discriminant function SPSS 11.6 version was used.

Findings of the study

A. State wise variations in Gross Domestic Product:

Gross domestic product is an important yardstick of economic development. Table-I represents the state wise variations in Gross domestic product.

Table-I
Gross Domestic product in various states at constant
prices-2010-11

(Rs. in Crores)

| S. No | States | GDP | Rank |
|-------|-----------------|------------|------|
| 1 | Andhra Pradesh | 3,81,942 | 4 |
| 2 | Assam | 74,215 | 15 |
| 3 | Bihar | 1,44,472 | 13 |
| 4 | Gujarat | 3,65,295 | 5 |
| 5 | Haryana | 1,66,095 | 11 |
| 6 | Jammu & Kashmir | 38,739 | 16 |
| 7 | Karnataka | 2,79,932 | 7 |
| 8 | Kerala | 1,93,383 | 9 |
| 9 | Madhya Pradesh | 1,82,647 | 10 |
| 10 | Maharashtra | 7,75,020 | 1 |
| 11 | Orissa | 1,28,367 | 14 |
| 12 | Punjab | 1,48,844 | 12 |
| 13 | Rajasthan | 2,04,398 | 8 |
| 14 | Tamilnadu | 3,91,372 | 3 |
| 15 | Uttar Pradesh | 3,94,499 | 2 |
| 16 | West Bengal | 3,17,786 | 6 |
| | All India | 41,87,006 | |
| | Average | 2,61,687.9 | |

Source : Economic Survey - 2012

Table-I indicates that Gross Domestic Product at constant prices was the highest in Maharashtra (Rs. 7,75,020 crores) and lowest is Jammu and Kashmir (Rs. 38,739 crores). On the basis of average Gross domestic product, the states are divided into two categories

- a) Highly developed states comprising of Maharashtra, Uttar Pradesh, Tamilnadu, Andhra Pradesh, Gujarat, West Bengal, Karnataka, Rajasthan and
- b) Low developed states comprising of Kerala, Madhya Pradesh, Haryana, Punjab, Bihar, Orissa, Assam and Jammu& Kashmir.

A. State wise variations in enrolment in higher education:

The growth and expansion of higher education in the country, in post-independence period, has been rapid. Yet it has been uneven between various States which has given rise to numerous access-related issues. Table-II presents the number of students enrolled in higher education for selected States of India.

Table-II

**State wise number of students enrolled in higher
education in India- 2010-11**

| S. No | States | Men Enrolment | Women Enrolment | Total Enrolment | Rank |
|-------|-----------------|----------------------|---------------------|-----------------|------|
| 1 | Andhra Pradesh | 11,28,585 (61.08) | 7,18,894 (38.92) | 18,47,479 | 2 |
| 2 | Assam | 1,40,937 (52.51) | 1,27,514 (47.49) | 2,68,451 | 14 |
| 3 | Bihar | 4,75,028 (68.76) | 2,15,748 (31.24) | 6,90,776 | 9 |
| 4 | Gujarat | 5,35,295 (59.89) | 3,58,353 (40.11) | 8,93,648 | 7 |
| 5 | Haryana | 2,50,721 (55.39) | 2,01,844 (44.61) | 4,52,565 | 12 |
| 6 | Jammu & Kashmir | 99,779 (54.11) | 84,615 (45.89) | 1,84,394 | 16 |
| 7 | Karnataka | 5,71,554 (57.07) | 4,29,919 (42.93) | 10,01,473 | 4 |
| 8 | Kerala | 1,74,327 (43.21) | 2,29,494 (56.79) | 4,03,821 | 13 |
| 9 | Madhya Pradesh | 5,75,122 (61.91) | 3,53,817 (38.09) | 9,28,939 | 6 |
| 10 | Maharashtra | 10,96,913 (56.11) | 8,58,313 (43.89) | 1,95,226 | 15 |
| 11 | Orissa | 3,00,964 (58.96) | 2,09,454 (41.04) | 5,10,418 | 10 |
| 12 | Punjab | 2,35,694 (50.16) | 2,34,176 (49.84) | 4,69,870 | 11 |
| 13 | Rajasthan | 4,90,729 (62.15) | 2,98,750 (37.85) | 7,89,479 | 8 |
| 14 | Tamilnadu | 7,82,123 (52.76) | 7,00,154 (47.24) | 14,82,277 | 3 |
| 15 | Uttar Pradesh | 15,82,080 (61.68) | 9,82,806 (38.32) | 25,64,886 | 1 |

| S. No | States | Men Enrolment | Women Enrolment | Total Enrolment | Rank |
|-------|-------------|----------------------|----------------------|-----------------|------|
| 16 | West Bengal | 5,67,016 (60.06) | 3,77,059 (39.94) | 9,44,075 | 5 |
| | All India | 90,07,167 (58.53) | 63,80,910 (41.47) | 1,53,88,077 | |
| | Average | 5,62,947 (58.53) | 3,98,806 (41.47) | 9,61,754 | |

Source: UGC report 2011.

Figures in brackets indicate the percentage to total enrolment.

Table-II indicates that enrolment in higher education was the highest in Uttar Pradesh (25,64,886) and lowest is Jammu and Kashmir (1,84,394). On the basis of average enrolment, the states are divided into two categories:

a) States with high enrolment are Andhra Pradesh, Karnataka, TamilNadu and Uttar Pradesh

b) States with low enrolment are Assam, Bihar, Gujarat, Haryana, Jammu & Kashmir, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan and West Bengal.

A. State wise variations in number of teachers, universities and colleges in higher education :

Enrolment in higher education is facilitated by the establishment of universities, colleges and appointment of teachers. Table III represents the number of teachers in higher education, universities and colleges.

Table-III
State Wise Variations in Number of Teachers in
Higher Education,
Universities and Colleges -2010-2011

| S. No | States | Teachers | Universities | Colleges |
|-------|-----------------|----------|--------------|----------|
| 1 | Andhra Pradesh | 81,795 | 45 | 4,066 |
| 2 | Assam | 19,582 | 9 | 507 |
| 3 | Bihar | 28,543 | 21 | 653 |
| 4 | Gujarat | 23,651 | 34 | 1,836 |
| 5 | Haryana | 22,435 | 22 | 902 |
| 6 | Jammu & Kashmir | 5,872 | 11 | 328 |
| 7 | Karnataka | 75,047 | 41 | 3,078 |
| 8 | Kerala | 28,651 | 16 | 1,063 |
| 9 | Madhya Pradesh | 29,563 | 27 | 2,236 |
| 10 | Maharashtra | 78,521 | 44 | 4,631 |
| 11 | Orissa | 23,656 | 18 | 1,100 |
| 12 | Punjab | 22,321 | 17 | 852 |
| 13 | Rajasthan | 29,231 | 44 | 2,412 |
| 14 | Tamilnadu | 81,652 | 59 | 2,267 |
| 15 | Uttar Pradesh | 69,874 | 58 | 3,859 |
| 16 | West Bengal | 27,108 | 26 | 942 |
| | All India | 6,47,502 | 492 | 30,732 |
| | Average | 40,468 | 30 | 1,920 |

Source: UGC report 2011.

Table-III indicates that the number of teachers in higher education was found to be highest in Andhra Pradesh and lowest in Jammu and Kashmir. However, TamilNadu has the highest number of universities and Maharashtra had the highest number of colleges.

A. Estimated Theil's Inequality index of Gross Domestic Product, enrolment in higher education, number of teachers, number of universities and number of colleges :

The study estimated Theil's inequality index for the selected variables to find out the interrelationship between higher education and economic development. Table-IV represents the estimated Theil's inequality index.

Table-IV

Estimated Theil's Inequality index of Gross Domestic Product, enrolment in higher education, number of teachers, number of universities and number of colleges-2010-11

| S. No | Items | Theil's Inequality Index |
|-------|--|--------------------------|
| 1. | Gross Domestic Product | 0.0192 |
| 2. | Enrolment in higher education | 0.2139 |
| 3. | Number of teachers in higher education | 0.1922 |
| 4. | Number of universities | 0.1287 |
| 5. | Number of colleges | 0.2344 |

Source: Calculated figures based on data compiled

In 2010-11, there was more inequality in number of colleges (0.2344) and the inequality was found to be less in Gross Domestic Product (0.0192).

E Identification of determinants of Gross Domestic Product:

By using discriminant analysis the study tried to identify the significant factors influencing Gross Domestic Product. The estimated discriminant function is of the form

$$Y=b_1x_1+b_2x_2+b_3x_3+b_4x_4+b_5x_5$$

Where,

Y= Gross Domestic Product

X1=Population

X2= Enrolment in higher education

X3=Number of universities

X4=Number of teachers and

X5= Number of colleges

Table V represents the estimated discriminant function coefficients of Gross domestic product as related to the selected variables.

Table-V

**Estimated Discriminant function co-efficients of
Gross Domestic Product
as related to the selected variables**

| Items | Group I Mean | Group II Mean | Mean Difference (xi) | Discriminant Co-Efficient (bi) | bi X xi | Relative Discriminating Power (in percent) |
|-------------------------------|--------------|---------------|----------------------|--------------------------------|---------|--|
| Population | 0.41 | 0.22 | 0.19 | 0.193 | 0.03 | 2.29 |
| Enrolment In Higher Education | 0.84 | 0.52 | 0.32 | 1.599 | 0.51 | 32.01 |
| Number Of Teachers | 0.32 | 0.11 | 0.21 | 1.792 | 0.37 | 23.54 |
| Number Of Universities | 0.85 | 0.61 | 0.24 | 1.906 | 0.45 | 28.62 |
| Number Of Colleges | 0.67 | 0.49 | 0.18 | 1.201 | 0.21 | 13.53 |

Source: Calculated figures based on data compiled.

From table-V it is evident that enrolment in higher education has got more discriminating power (32.01 percent) on Gross Domestic Product. Number of universities has contributed for (28.62 percent) of change in Gross Domestic product while number of teachers has contributed for (23.54 percent) of change in Gross Domestic product and number of colleges has contributed for (13.53 percent) change in Gross Domestic product. The estimated discriminant function was statistically valid as indicated by Mahalanobis 'D' squared value of 2.30.

Conclusion :

The enrolment in higher education is a significant variable affecting economic development in terms of GDP. Hence efforts should be formulated to improve the enrolment in higher education. Any policy aimed at pushing net enrolments towards 100% must also assure decent learning conditions and opportunities.

Measures to improve the quality of higher education:

1. Every University must have its own curriculum. There should not be any mechanism for central curriculum framework at higher education level. Context, specificity and inquiry oriented experience must be reflected in the curriculum. Learners' participation in the generation of knowledge must be the focus of constructivist curriculum. Problem solving abilities must be developed through experimentation life-like situations.
2. Learners involvement must be encouraged to link previous experience with present learning. The learner should have full opportunity to scrutinize the learning experiences.
3. Learners must have ample scope to formulate their own queries and have multiple interpretations of knowledge through self search and experiential learning and
4. Government must take steps to improve on number of inbound mobile students by increasing the public spending on programmes or participation in international fairs.

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